Optimal Monetary Policy in a Currency Union with Asymmetric House Price Booms

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– Extended Abstract –

We study optimal monetary policy in a two-country currency union model with a novel and empirically relevant structural asymmetry: the time it takes to build new houses and facilities, out of present-day investments, differs across countries.

At the same time, while private sector agents in the union are rational they entertain subjective beliefs about the behavior of house prices: as in Adam et al. (2012; 2022), they update their beliefs by using the Kalman filter on observed price changes from the past.[1] This informational friction allows us to think about non-fundamental housing booms: Within each country, the presence of subjective beliefs can temporarily de-link house prices from their fundamentals and endogenously turn a stimulative shock into a self-reinforcing house price boom. House prices rise initially, leading private agents to revise their beliefs over future price growth upwards, and the ensuing capital gains expectations incentivize investment into the construction of new houses. Prices are pressed down eventually by the emerging housing supply expansion – but the time it takes to build new houses differs across countries. Hence, the endogenously emerging boom-bust-episodes in house prices are much more pronounced in the country with a slow-to-adjust housing supply.

In equilibrium, the slow-to-adjust member country experiences a comparatively large boom-bust-cycle in house prices and borrows from the other member country to finance its investment into new housing during the boom phase of the cycle. This serves to decrease welfare by (1) adding volatility to aggregate hours and consumption in both countries, and (2) incentivizing inefficient investment into housing during the boom phase in the slow-to-adjust country (cross-border lending aggravates this effect beyond what would obtain in a closed economy). In a closed economy, monetary policy optimally leans against housing price surges that are belief-driven (Caines and Winkler, 2021) but in a currency union, it is constrained to conduct policy jointly for the country with a strong propensity to experience cycles and the country with a low such propensity. Optimal monetary policy thus balances leaning against inefficiently high house price expectations in the slow-to-adjust country and keeping its stance from becoming overly contractionary in the quick-to-adjust country.

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[1] Agents are rational in the following sense: for each stochastic process that they take as given, and with the exception of house prices, they hold expectations that are consistent with the equilibrium-implied probability-distribution of the process. Moreover, they act fully optimal given their beliefs.

Our paper relates to the literature on Optimal Currency Areas. Said literature has traditionally focused on asymmetries that regard either price-setting frictions for goods (cf. e.g. Benigno, 2004), or on labor market frictions (cf. e.g. Kekre, 2022) – to the best of our knowledge, we are the first to examine the ramifications of structural asymmetries that lead to across-country-asymmetric boom-and-bust cycles in asset prices.

This type of asymmetry is relevant for at least two reasons: First, the dynamics of house prices and price-to-rent ratios of the last two decades are strikingly different across Euro-Area member countries (Figure 1), with Spain and Ireland experiencing a pronounced cycle, while France experiences a house price inflation without reversion and real house prices in Germany are flat; Second, house prices react by less to stimulative shocks if the supply of housing is elastic – Aastveit et al. (2020) and Aastveit and Anundsen (2022) show how the differential house price reactions to monetary policy shocks between US metropolitan areas relate negatively to differences in the elasticity of housing supply. For the Euro-Area, we document a similar fact by means of a panel Local Projection exercise. We regress the logarithm of a real property price index, and the logarithm of the price-to-rent ratio for selected Euro-Area countries on a high-frequency-identified monetary policy shock and its interaction with a measure of housing supply capacity, namely the time it takes to obtain a building permit ("TTOBP"). (Details are to be found above Figure 2.) For each outcome variable, we run the following regression:

$$y_{n,t+h} = \alpha_n^h + \beta^h \epsilon_t^{MP} + \gamma^h \epsilon_t^{MP} \times \text{TTOBP}_n + \text{controls}_{n,t} + u_{n,t+h}, \quad t+h \in \text{Quarters}, n \in \text{Countries}.$$

In countries where it takes comparatively long to start the construction process (and thus long until the house is constructed), house prices react much more strongly to a positive monetary policy shock (Figure 2); Increasing the time it takes to obtain a building permit by one standard deviation (ca. 50 days) increases the peak house price reaction to a one standard deviation MPS (ca. 13 bpt.) by almost 50%. In a separate set of regressions, which we do not show here, we also show that real housing investment (see Figure 1, lower left panel) reacts much more strongly to an expansionary monetary policy shock in countries where it takes longer to build new houses.

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Figure 1: Prices and investment for housing, and capital flows from Germany, for selected Euro-Area countries (2000 = 100); *Source:* real property price = *BIS*, price-to-rent = *OECD*, housing investment = *"Gross fixed capital formation for dwellings" from EuroStat*, German bank cross-border net claims = *BIS*.

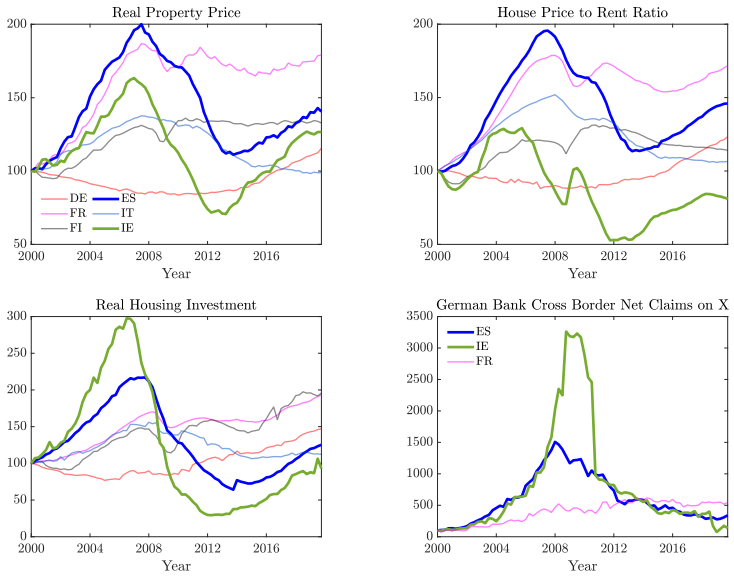

Figure 2: Responses to expansionary MP shock (1 std = 13 bpt); **Interaction term: Time to obtain a building permit in days** (World Bank; 1 std = 49 days); MP-shock: high-frequency-identified based on OIS at one year horizon from Altavilla et al. (2019), applied poor man's approach & aggregated to quarterly frequency; Controls: 6 lags of LHS variable, log GDP, log HICP, EONIA, MP shock, MP shock × interaction; Sample: all quarters from 2000Q1 to 2019Q4; Countries: AT, DE, ES, FI, FR, IR, IT, NL, PT; Confidence Intervals: 68% and 95% (Driscoll and Kraay, 1998).